



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,389	02/10/2004	Toshiya Uemura	PTGF-03083	9738
21254	7590	03/11/2005	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817				LOUIE, WAI SING
		ART UNIT		PAPER NUMBER
		2814		

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/774,389	UEMURA, TOSHIYA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Wai-Sing Louie	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/10/04.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Slater et al. (US 6,791,119).

With regard to claim 1, Slater et al. disclose a light-emitting diode (col. 6, line 51 to col. 23, line 14 and fig. 2) comprising:

- a semiconductor light-emitting element 100 (fig. 1) that radiates light from its light-emission surface provided on the opposite side to its electrode forming surface (fig. 2);
- lead frames that are electrically connected to electrodes formed on the electrode forming surface through wires 260 and 270 (fig. 2);
- a transparent structure 110 that is optically connected with the light-emission surface and has a light distribution characteristic (col. 7, lines 4-13) based on its three-dimensional shape (col. 11, lines 51-62 and fig. 5); and
- light transmitting plastic (resin) that seals the semiconductor light-emitting element 100 and the transparent structure 110 (col. 11, lines 4-11 and fig. 2).

With regard to claim 4, Slater et al. disclose the transparent structure 110 has a microscopic uneven surface to diffuse light (col. 15, lines 34-45 and fig. 9).

With regard to claim 5, Slater et al. disclose the transparent structure 1310 has a reflection layer 1732 formed on its surface (fig. 17a).

With regard to claim 7, Slater et al. disclose the electrodes 150 and 160 are metallic and reflective (col. 7, line 66 to col. 8, line 3). Inherently, the electrodes do not transmit light.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater et al. (US 6,791,119) in view of Lin et al. (US 6,614,058).

With regard to claim 2, Slater et al. do not disclose the transparent structure 110 has a length in the horizontal direction greater than that of the semiconductor light-emitting element 100. However, Lin et al. disclose the substrate 403 has a length in the horizontal direction greater than that of the semiconductor light-emitting element 405 (Lin fig. 5). Lin et al. teach the lengthened substrate 403 creates an incline sidewall, which reflects the light emitted from the light-emitting element and reduces energy loss (Lin col. 5, lines 59-67). Slater et al. and Lin et al. have substantially the same environment of LED having a SiC substrate (Lin col. 3, lines 38-40).

Therefore, it would have been obvious for the one with ordinary skill in the art to modify Slater's device with the teaching of Lin et al. to provide a longer transparent structure in order to reflect the light-emission and reduce energy loss.

With regard to claim 3, Slater et al. do not disclose the transparent structure 110 has a thickness of half that of the semiconductor light-emitting element to twice the length of a shorter side of the semiconductor light-emitting element. Since the applicant has not established the criticality of the thickness stated and since these thickness are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device. Where patentability is said to be based upon particular chosen dimension or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater et al. (US 6,791,119) in view of Lowery et al. (US 6,351,069).

With regard to claim 6, Slater et al. do not disclose one of the lead frame has a cup portion. However, Lowery et al. disclose a LED 34 is positioned on the reflector cup lead frame 14 (Lowery fig. 3). Lowery et al. teach the reflector cup lead frame propagating output light in the general direction of the arrow 26 (Lowery col. 5, lines 54-56 and fig. 3). Slater et al. and Lowery et al. have substantially the same environment of a LED encapsulated in a lead frame. Therefore, it would have been obvious at the time the invention was made to modify Slater's device with the teaching of Lowery et al. to provide a cup lead frame in order to propagate output light in the general direction. Slater et al. modified by Lowery et al. disclose the LED is

Art Unit: 2814

fixed on the cup portion 14 through adhesive resin 38 with phosphor (light diffusion material) mixed (Lowery col. 6, lines 64-67).

With regard to claim 8, in addition to the limitations disclosed in claim 1 above, Slater et al. modified by Lowery et al. also disclose:

- the light transmitting resin including a phosphor to wavelength-convert light emitted from the semiconductor light-emitting element (Lowery col. 6, lines 64-67).

With regard to claim 9, Slater et al. modified by Lowery et al. the light transmitting resin contains two kinds of phosphor (Lowery col. 5, lines 5-7).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2814

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wsl  
March 3, 2005.



LONG NAM  
PATENT EXAMINER